# Expedition: Treasures From 125 Years of Discovery

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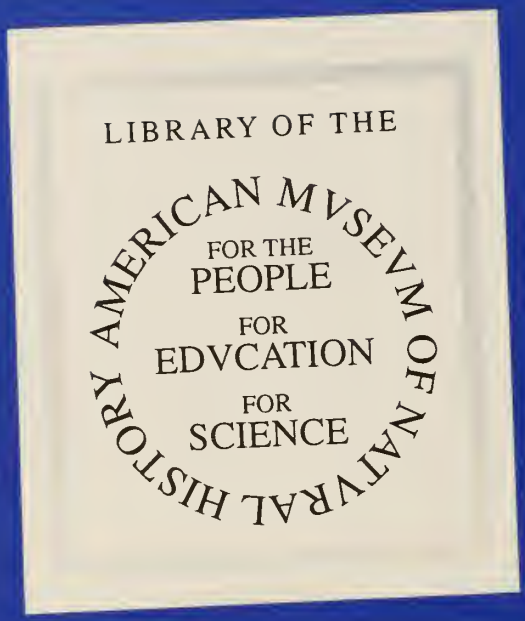
American Museum of Natural History

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*The Jack and Susan Rudin Exploration Trails Program* at the American Museum of Natural History, the children's journey through *Expedition: Treasures from 125 Years of Discovery,* has been made possible by a generous gift from Jack and Susan Rudin. We are grateful for their support of the Museum's educational mission and their continuing dedication to enriching the learning experiences of the school children of New York City.

# Welcome

to the American Museum of Natural History. In honor of its 125th anniversary, the Museum has arranged for you to go on a special expedition. As a member of this expedition, you will be exploring many of the wonders of this planet—fossils, gems, animals, insects, plants, and people and their cultures. Most explorers travel to far-off places, but your journey will take place right in the halls of this Museum. You will be following in the footsteps of those scientists who have traveled the world and who have brought back many of the treasures you will see today. On this expedition, you can move back in time to the Age of Dinosaurs. You can touch a meteorite as old as the solar system. You can see a young Chinese woman on the way to her wedding. You can visit the woodlands, savannahs, and mountain regions of Africa. You can even shrink to the size of an ant. A great adventure lies before you today. To begin, turn the page.

Note: Some of the words in this passport are in bold lettering, like this: **fossil**.
You can find the meanings of these words in the back of this passport.

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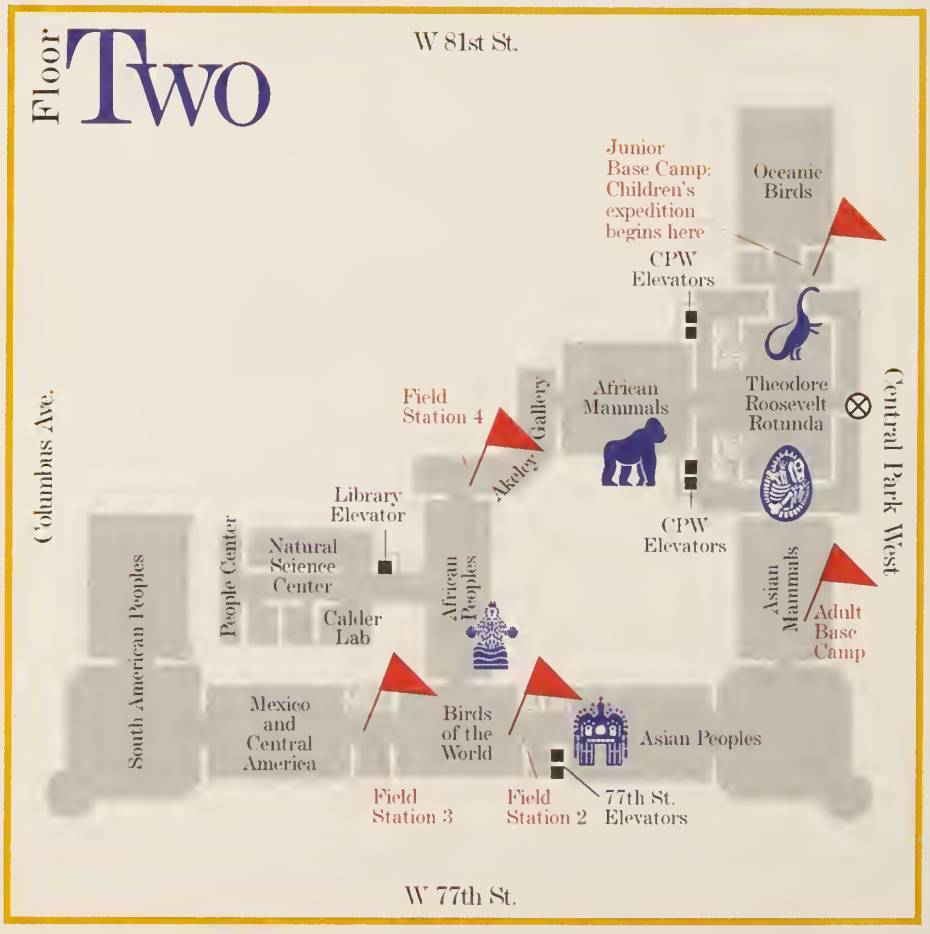
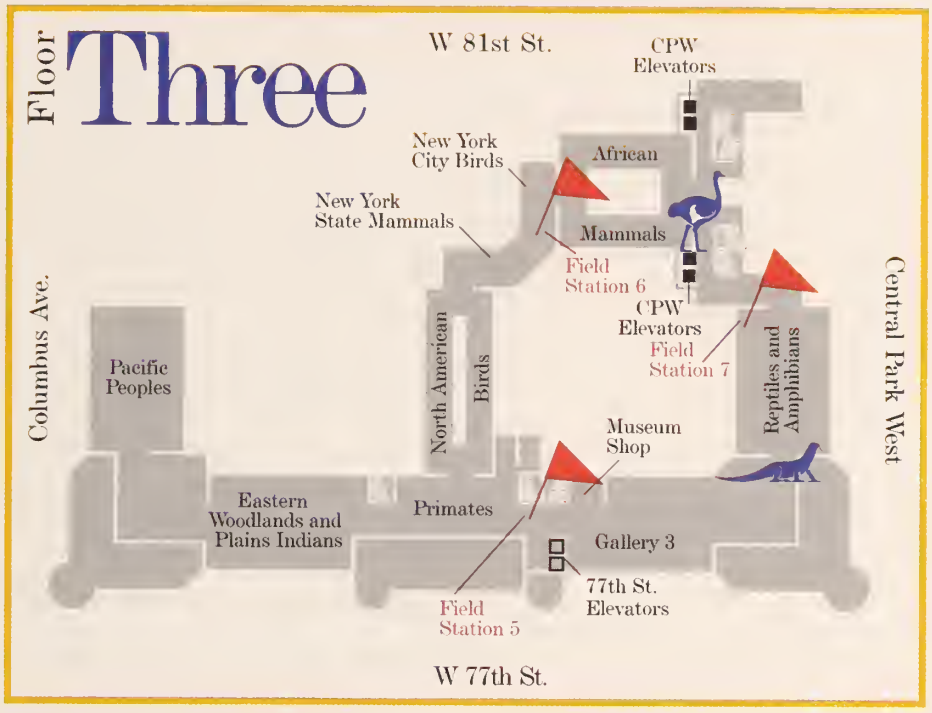
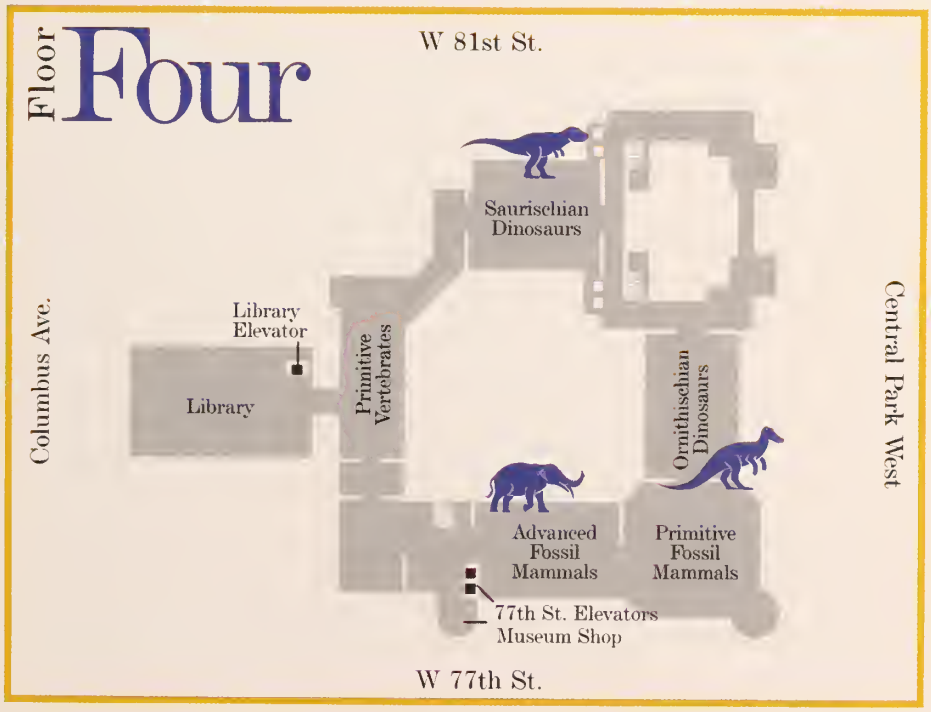
Floor One
W 81st St.
Parking Area
Planetarium
Biology of Birds
CPW Elevators
Auditorium
Naturemax
Eskimos
Small Mammals
North American Mammals
Theodore Roosevelt Memorial
Columbus Ave.
Central Park West
CPW Elevators
Library Elevator
Minerals and Gems
Dana Education Wing
Northwest Coast Indians
Gallery 77
Ocean Life and Biology of Fishes
Discovery Room
Biology of Invertebrates
Meteorites
Human Biology and Evolution
NY State Environment
North American Forests
77th St.Elevators
Museum Shop
Field Station 1
Mollusks and Our World
Naturemax Tickets
W 77th St.


Floor Two
W 81st St.
Junior Base Camp: Children's expedition begins here
Oceanic Birds
CPW Elevators
Theodore Roosevelt Rotunda
Columbus Ave.
Central Park West
Field Station 4
Akeley Gallery
African Mammals
Library Elevator
Natural Science Center
People Center
Calder Lab
African Peoples
CPW Elevators
Asian Mammals
Adult Base Camp
South American Peoples
Mexico and Central America
Birds of the World
Asian Peoples
Field Station 3
Field Station 2
77th St. Elevators
W 77th St.




The Ornithischian Dinosaurs and the Saurischian Dinosaurs are scheduled to open May 1995.

# Passport

Place a photo or draw a picture of yourself here.

## Purpose of your visit:

Check all that apply

- ☐ **Anthropology:** Learn about people and their cultures.
- ☐ **Ecology:** Observe animals and plants in their habitats.
- ☐ **Paleontology:** Discover dinosaurs.
- ☐ **Geology:** Examine rare and precious minerals and gems.
- ☐ **Biology:** Learn about the human body.

Name .....

School .....

Age .....

What are your interests? .....

.....

Signature ..... Date: .....

Field Station 4: African Peoples

Field Station 2: Asian Peoples

Field Station 1: North American Forests

# Stamps

Stamp your passport
at Field Stations indicated
in each stamping place.

Field Station 5: Primates

Field Station 7: Reptiles and Amphibians

# Barosaurus

Treasure 22 It is 150 million years ago. You are standing in a valley in western Wyoming. An adult ***Barosaurus*** and a baby are grazing nearby. Suddenly an ***Allosaurus***, a **predator**, appears out of nowhere. It rushes towards the young one. The *Barosaurus* rises up in defense.

The scene you are looking at shows what **paleontologists** think might have happened. How do paleontologists come up with their ideas about how dinosaurs looked and behaved? They study dinosaur **fossils** and use their knowledge of living animals to help form their ideas about dinosaurs.

**This treasure was found in Wyoming, United States.**

These **skeletons** are replicas that were cast from fossilized dinosaur bones. The fossilized bones are too heavy to mount. You can see them in the case behind the *Barosaurus*.

---

- How high is the adult *Barosaurus*? Is it higher than the school you go to?
- What ideas about dinosaurs can you form from their skeletons?
- Compare the skeletons of these two dinosaurs. Can you tell from the skeletons how each dinosaur moved?
- Can you tell which dinosaur is an herbivore and which is a carnivore? (Hint: look at the teeth and claws.)

You can find this exhibit on the second floor. Look for this symbol.

Dinosaur Embryo

# Dinosaur Embryo

Treasure 24 In 1993, **paleontologists** from the American Museum of Natural History and from Mongolia found a nest of fossilized eggs in the Gobi Desert. Look closely at the egg. There is a tiny dinosaur **embryo** inside. Paleontologists studied the embryo. They believe it to be a dinosaur called ***Oviraptor***.

**This treasure was found in the Gobi Desert, Mongolia.**

*Oviraptor* looked like an ostrich. It had a long neck, long back legs, and a head like a parrot's. It had a toothless jaw.

Paleontologists found something else in the nest: two tiny skulls of very young ***Velociraptors***. They did not belong in the nest. What were they doing there? Paleontologists used their knowledge of living animals to come up with some **hypotheses** or good guesses. Here are three of their ideas:

- The young *Velociraptors* were learning to hunt. They were raiding the nest;
- *Oviraptor* parents killed the *Velociraptors* to feed their newborn;
- *Velociraptors* put their eggs in the *Oviraptor* nest, hoping the *Oviraptors* would care for the eggs and their young.

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- Which hypothesis do you think is correct? Why? Do you have a different hypothesis?
- What kind of food did *Oviraptor* feed on? (Hint: Look at the jaw.)
- What kinds of animals reproduce by shell eggs?
- How can paleontologists' knowledge of animals help them learn more about dinosaurs?

You can find this exhibit on the second floor. Look for this symbol.

African Elephant

# Akeley Hall of African Mammals

Treasure 26 This hall is named in honor of Carl Akeley, **naturalist** and artist. The scene in the gorilla diorama is one he called the most beautiful in the whole world. It is a spot in Zaire, Africa—a rainforest two miles high on the slopes of a mountain in the Kivu range. Here you see a family of mountain gorillas **foraging** for food. Gorillas are **herbivores**, plant-eaters. The head male of the family is standing in the center. To the right a female cares for an infant.

**These treasures are from the African continent.**

Akeley developed a method of preparing and mounting the skins of animals. You will notice that animals in this hall appear real and alive in their **habitats**. Each diorama in the hall shows a different habitat—a **savannah**, a forest, a desert, a watering hole. Many of these places don't look like this any more, and many of these animals—the gorillas, the bongos, the giant elands, and the elephants—are threatened or **endangered**.

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- How many plants can you identify in the gorilla diorama?
- How many different habitats can you find? How are they different?
- What features identify the male leader in the gorilla exhibit? In the lion exhibit?
- Why are these animals threatened or endangered?

You can find this exhibit on the second floor. Look for this symbol.

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# African Spirit Dancer

Treasure 27 This costume is from the Yoruba people of Nigeria, West Africa. The costume is called Marikoto, and it is made of real snail shells. Even the wooden headdress is carved in the shape of a snail. Marikoto is a dancer who is often seen at Egungun ceremonies. Most Egungun figures represent ancestors who return from the world of the dead to settle problems, grant prosperity, and bless crops but not Marikoto. He is a trickster who amuses the crowd by mimicking people and magically appearing and disappearing.

**This treasure is from Nigeria, Africa.**

Africa is a continent about twice the size of the United States. It has more than 300 million inhabitants. Look around the gallery. What do the many objects tell you about Africa and its people?

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- In the Egungun ceremonies, dance is a means of sacred communication between the world of the living and the world of the dead. How are dance and costume used in your activities?
- In folklore, animals often take on human characteristics. What role do animals play in the folklore you are familiar with?

You can find this exhibit on the second floor. Look for this symbol.

# Chinese Wedding Chair

Treasure 36 This is a wedding chair from China. On her wedding day, a young woman sits inside. She is dressed all in red and a veil covers her face. The chair is carried by four strong men to the home of the woman's husband-to-be, whom she has never seen. As the chair moves through the streets musicians play.

The wedding procession represents a day when lives change. The young woman leaves behind her childhood. She will now take on adult responsibilities. Much planning has gone into making the day a lucky one. Astrologers have chosen the day with great care. The chair is trimmed with the feathers of the kingfisher, a symbol of beauty and marital happiness. Tiny mirrors in small pendants are hung on the edges of the chair to scare away ghosts. As the young woman reaches her new home firecrackers are set off to drive off ghosts and to make sure everyone knows she has arrived.

**This treasure is from southern China.**

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- Have you ever seen a woman on her wedding day? How was she dressed? How did she get to her wedding?
- What are some of the wedding traditions and symbols of your culture?
- What ceremonies do you know of that represent leaving childhood to take on adult responsibilities?

You can find this exhibit on the second floor. Look for this symbol.

Dodo Skeleton

# Dodo

Treasure 21 The dodo once lived on the island of Mauritius (mohr-REESH-ee-us) in the Indian Ocean. Long ago a flying relative of the dodo found its way to Mauritius. The island was a perfect home. There were leaves and fallen fruits to eat. Most importantly, there were no **predators**. Since the dodo was not threatened by other animals, it didn't need to fly away. Slowly, over time, the dodo lost its ability to fly. It became flightless.

**This treasure is from Mauritius.**

Life for the dodo was fine, until around the year 1600. Then, sailing ships made Mauritius a stop on their trade routes. Sailors who were hungry for fresh food discovered that the dodo could be eaten. Suddenly, the dodo had a predator...man. The dodos couldn't fly and they weren't used to running away from enemies. They were easy **prey** for sailors. To make matters worse, the sailors brought pigs and rats to the island. These animals destroyed the dodos' nesting sites. Less than 80 years after it was first discovered by humans, the dodo was **extinct**.

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- What is it about the dodo's body that tells you it is a flightless bird?
- What other birds in this gallery are flightless?
- How does the destruction of **habitats** endanger birds and animals?
- What other birds in the gallery are extinct? Name them.

You can find this exhibit on the first floor. Look for this symbol.

# Tlingit Armor

Treasure 11 This is the armor worn by a Tlingit warrior of the Pacific Northwest over 100 years ago. The armor protected warriors during conflicts with other tribes. Tlingit armor was well designed. The tough moosehide covering protected the warrior against arrows and other weapons. The Tlingit decorated their possessions with paintings, carvings, and abalone shells.

**This treasure is from Alaska, United States.**

Can you see the round coins that cover the armor? They are from China. They came from New England sea merchants who traded metal tools and other goods with the Tlingit in return for sea otter pelts. Then, the merchants traded the pelts to the Chinese for spices. Trading offered the Tlingit yet another decoration, Chinese coins. The metal coins also gave warriors added protection when fighting.

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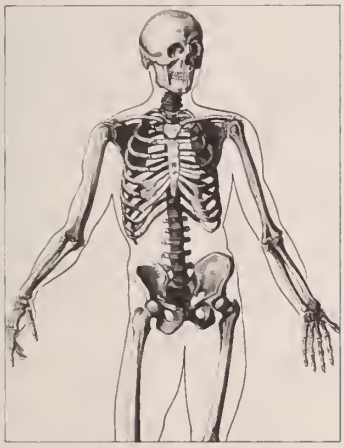
- Look at the twisted face on the helmet. Why do you think the Tlingit decorated their armor with such designs?
- How did the warrior wear this armor?
- What other kinds of armor have you seen? What was it made of? Was it decorated? How?
- Look around the gallery. What do the objects you see tell you about the Pacific Northwest Indians and their culture?

You can find this exhibit on the first floor. Look for this symbol.

# Visible Woman Hologram

Treasure 7 Have you ever wondered what your body looks like inside? This **hologram** will give you a good idea of how your **skeleton**, organs, muscles, veins, arteries, and nerves all fit together. *To see them, stand to the far right of the hologram and about 10 feet back.* Can you find the spine and the **vertebrae**?



This is a human skeleton.

*Move a step to the left* and the internal organs appear. Inside the ribs are the lungs. Below are the stomach and the small and large intestines. *Step to the left again.* The arteries, veins, and nerves appear as well as the outline of hair and flesh.

The Visible Woman used to be a plastic model. It was transformed into this hologram. The old model was taken apart layer by layer. Seven layers were reproduced on holographic film. The seven images were put together to make one single image—the visible woman you see here.

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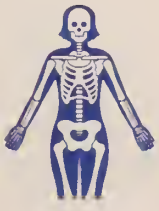
- The rib cage protects the lungs and heart. What protects and covers the intestines?
- Place your hand on your heart. What do you feel? What are the functions of the lungs and the heart?
- What similarities do you see between humans and other mammals?
- What is the biggest difference between the human skeleton and the skeletons of other mammals?
- Feel your vertebrae. Do they have the same shape as the vertebrae of the visible woman?



You can find this exhibit on the first floor. Look for this symbol.

Ahnighito Meteorite

# Cape York Meteorite

Treasure 4 This is Ahnighito (ah-nee-GHEE-toh), a piece of the meteorite that crashed to Earth in Greenland about ten thousand years ago. It was given its name by the Inuit people, Native Americans who live near Cape York where it fell. Ahnighito is a big chunk of metal that weighs about 34 tons (68,000 pounds). Two other pieces, named the Woman and the Dog, are also in this gallery.

**This treasure was found in Cape York, Greenland.**

A **meteor** is a metal or stony fragment that enters the Earth's atmosphere. Many meteors get hot and break up into dust as they come through the atmosphere. Some are so bright we can see them. We call them shooting stars. Those that come through the atmosphere and do not break up are called **meteorites**. All meteorites are pieces of planets which were formed early in the history of the solar system. They are the same age as the solar system—four and a half billion years old. Meteorites provide valuable information about how the planets formed, how the Earth evolved, and how life began.

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- Suppose that each student in your class weighed 100 pounds, how many do you think it would take to equal the weight of Ahnighito?
- Compare the surface of Ahnighito with the Woman and the Dog. Why are the Woman and the Dog smoother?
- What kind of metal do you think the meteorite is composed of?

You can find this exhibit on the first floor. Look for this symbol.

# Star of India

Treasure 2 This gem is the largest blue star sapphire in the world. It was mined in Sri Lanka about 300 years ago. It is called the Star of India and it weighs 563 carats (about four ounces). How valuable is it? It is priceless–beyond evaluation, mainly because we can never replace it. There are no others like it in the world. It is the best! The white star is one of the characteristics of star sapphires. When light shines on the stone it creates three crossed lines. Legend has it that these lines represent faith, hope, and destiny.

**This treasure was found in Sri Lanka.**

Long ago people used carob beans to measure the weight of gems. Eventually carob beans were replaced by a standard weight called a **carat**. A carat is equal to 200 milligrams, about the weight of a small pea.

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- There are other gems here that have stars. Can you find them? Write down their names. What colors are they?
- What items can you name that weigh about the same as the Star of India?
- What is something you consider to be a gem?

You can find this exhibit on the first floor. Look for this symbol.

# Haida Canoe

Treasure 10 This canoe was made by the Haida people, American Indians of the Pacific Northwest coast, over 100 years ago. The parallel lines on the side of the canoe are the marks of an adz, a carving tool. It was used by Haida builders to shape this boat. They carved it out of a huge cedar tree—a single piece of wood. The bow (the front of the boat) is decorated with carvings and paintings.

**This treasure is from British Columbia, Canada.**

Large canoes like this were important to the American Indians living in the Pacific Northwest. Canoes made travel through the bays, inlets, rivers, and lakes possible. Entire communities moved to their seasonal camps by canoe.

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- Walk the length of this canoe. About how long is it? About how wide? How many people do you think it could carry?
- Who are the people in this canoe and where are they going? What is their clothing made of? How does it differ from the other clothing in the Northwest Coast Hall?
- Why were animals painted on canoes and on totem poles? Do you recognize the animals that are painted and carved on this canoe? What do you think they represent?

You can find this exhibit on the first floor. Look for this symbol.

Giant Sequoia Trunk

# Giant Sequoia

Treasure 12 Sequoia trees are the largest life forms on Earth. This cross-section slice is from a giant sequoia that stood for over 1300 years in a sequoia grove in central California. It was 331 feet tall when it was cut down by lumberjacks in 1891. In the very center of the slice you will see hundreds of concentric rings, called growth rings. Each one marks a year in the life of the tree.

The sequoias have natural defenses that have helped them survive for hundreds and, even thousands, of years. Sequoias are resistant to disease. Their wood contains natural insect repellent. Their bark is remarkably fireproof. In fact, they depend on fire to survive. Fire destroys other trees and plants that would otherwise crowd them out of the forest.

**This treasure is from California, United States.**

There were world-wide forests of sequoias during the Age of Dinosaurs. Today the only sequoia **species** left are the giant sequoia of central California and the coast redwood of northern California and Oregon. Many people feel the few remaining sequoias are natural treasures, and cutting them down is now prohibited by law.

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- Which part of the slice was only a few years old when the tree was cut down? How does the old heartwood look different from this youngest wood? What happened to the wood as the tree grew?

- How can a tree be very old and very young at the same time? How are you unlike a tree in the way you grow?

- Why are the rings at the center of the slice easiest to see? When was the tree growing the fastest?

- Look on the right of the slice. Did this tree live through a fire? How can you tell that the tree was never injured by any fire?

You can find this exhibit on the first floor. Look for this symbol.

Forest Floor
Diorama Installation

# Forest Floor Diorama

Treasure 13 You are looking at a section of forest floor enlarged 24 times. Look at all that has fallen here: leaves, acorns –what else do you see? This material is **decomposing**, that is, decaying or rotting. A big part of the decomposition job is done by some of the insects and other animals you see here. The millipede eats **algae** and leaves. Its waste becomes part of the soil. An acorn weevil, a kind of beetle, drilled a tiny hole into the acorn and laid an egg inside. When the egg hatched, the **larva** fed on the acorn and then ate its way out, leaving a large exit hole. Can you see it on the side of the acorn? It will spend the winter underground and emerge in the spring as a weevil.

**This treasure is a scene from the Eastern United States.**

To create this diorama, museum artists studied living plants and insects. They wanted to get the form, texture, and colors just right. Wire, balsa wood, metal, papier maché, cotton, and wax were used to create the diorama. The final coloring and texturing were done with beeswax and oil paints.

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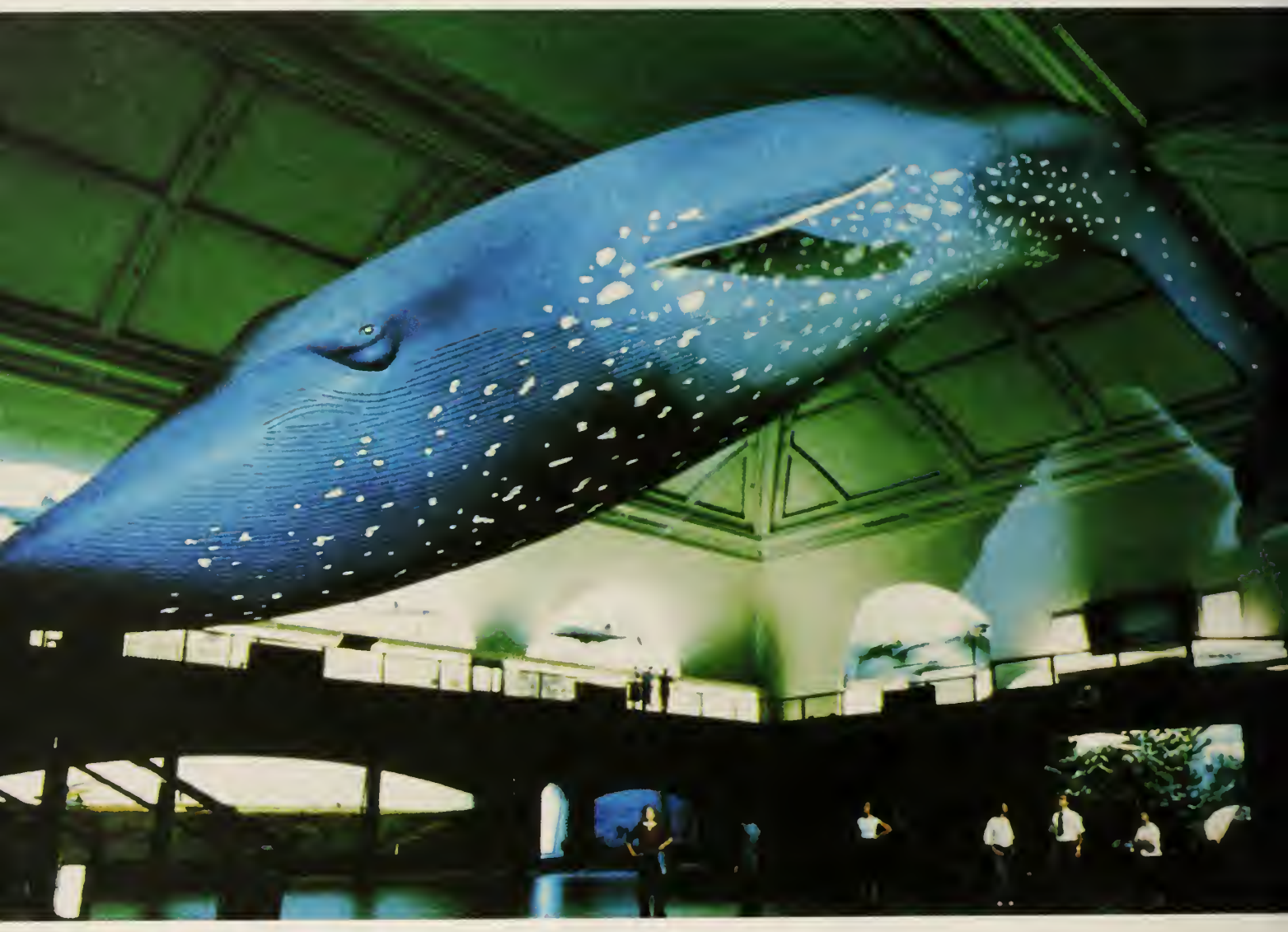
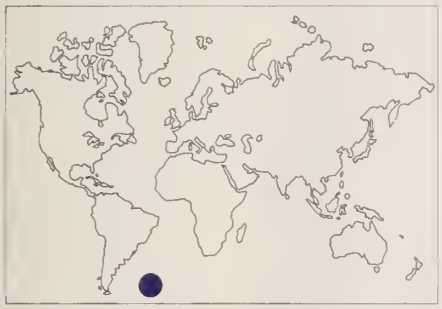
- How many insects and other kinds of animals can you find in this scene? Can you name them all? What job does each do?
- How many plants or parts of plants can you find in this exhibit?
- What is the smallest plant in the exhibit? What do its various parts do?
- Why do most leaves remain uneaten until the decomposers get to them?
- Why are only dead oak leaves visible when there are other kinds of plants in the forest?

You can find this exhibit on the first floor. Look for this symbol.



# Blue Whale

Treasure 16 The blue whale is the largest animal on the planet. It can weigh as much as 100 tons (200,000 pounds) and can reach a length of 120 feet. Blue whales are found part of the year in the cold ocean waters of Antarctica, where they feed on krill, small shrimp-like animals. To feed, the whale dives open-mouthed into a field of krill. It traps them in its strainer-like mouth. An adult blue whale can hold a ton of krill at a time. During the Antarctic winter, blue whales travel to warmer waters where they live off their stored fat.



**This treasure can be found near South Georgia Island, South Atlantic Ocean.**

The model you see here is based on a blue whale captured off South Georgia Island in the South Atlantic in 1926. The model is 94 feet long, has a steel frame, and is covered with fiberglass and polyurethane. In all, it weighs ten tons (20,000 pounds). Since this model was made, people have learned more about the blue whale. Blue whales are bluer than this model and a blue whale's eyes don't pop out like the model's.

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- What are the differences between whales and fish? What are those slots and indentations on the belly of the whale? Is this a male or a female?
- Why do you think blue whales migrate to warmer waters in the winter?
- Do blue whales have **predators?** What are their defenses?
- How do whales communicate?
- Why are blue whales **endangered?** What do you think can be done to protect them?

You can find this exhibit on the first floor. Look for this symbol.

# Insect Collection

Treasure 19 **Entomologists**, scientists who study insects, think there are about five million different kinds of insects in the world. New **species** are continually being discovered. In fact, the big job for entomologists is simply finding all the different kinds of insects. Besides classifying insects, entomologists are also studying the roles insects play in nature.

**This treasure is from Zaire, Africa.**

There are 17 million insect **specimens** at the American Museum of Natural History. One of the smallest is a tiny parasitic wasp. You can see it by looking through the magnifying glass. It is less than half a millimeter long. It lays its eggs in the eggs of other insects. Why?

One of the largest insects is the Goliath beetle from Africa. It grows to be three inches long. As a **larva** it feeds on decaying wood; as an adult it feeds on leaves.

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- How many legs do insects have? How do you think they protect themselves?
- Why do you think there are so many different kinds of insects?
- What role do insects play in the food web?

You can find this exhibit on the first floor. Look for this symbol.

# Ostrich Diorama

Treasure 41 You are looking at the rolling grasslands of the Kidong Valley in Kenya, Africa. Some wart hogs have just stumbled upon a family of ostriches. The male ostrich reacts with alarm. Its neck is stretched out low, its mouth is open. What do you think it is going to do?

**This treasure is from Kenya, Africa.**

It may look like the ostrich is ready to attack, but it is actually trying to distract the wart hogs so that the chicks can run to safety. The ostrich will flap its wings, and run around trying to draw the wart hogs away from the nest.

Ostriches are well-adapted to the grassland **environment**. Although they are flightless, they can run 40 miles per hour on the open **savannah**.

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- What is it about the ostrich's body that tells you it is a flightless bird?

- A female ostrich lays 6 to 8 eggs. What reason can you find for the great number of chicks and eggs? Was it easy to find all the chicks? Why do you think they are colored the way they are?

You can find this exhibit on the third floor. Look for this symbol.

# Komodo Dragons

Treasure 43 Found on many of the Lesser Sunda Islands of Indonesia, the Komodo dragon is the largest lizard in the world. In this diorama, a Komodo sinks its jagged, dagger-like teeth into a wild boar. The Komodo on the right may want to fight over the **prey**. Find the Komodo dragon in the background. Can you see its forked tongue? The tongue is a sense organ that is used to smell and taste the air. The dragon tastes the air by flicking its tongue in and out.

This treasure is from Komodo Island, Indonesia.

Komodo dragons are big and powerful. They grow to be ten feet long and weigh close to 200 pounds. They prey on deer, goats, pigs, water buffalo, and,occasionally, humans. Because of their size and power, people are afraid of them and sometimes kill them. The Komodo dragon's existence in the wild depends on the preservation of their native **habitat**.

- Look at the other reptiles in this gallery. What characteristics do they have in common?

- Why do you think it is called a dragon? Does it look like a mythical dragon?

- Using the diorama, describe the Komodo dragon's habitat. What are the reasons for a habitat's reduction? What are some of your ideas for maintaining habitats?

You can find this exhibit on the third floor. Look for this symbol.

Original *T. rex* mount

# Tyrannosaurus

Treasure 49 ***Tyrannosaurus rex***, the "tyrant lizard king," is the largest land **predator** that ever existed. At 15 feet high and 40 feet long, *T. rex* was an earth-shaking giant. It roamed the warm and lush American West about 65 million years ago.

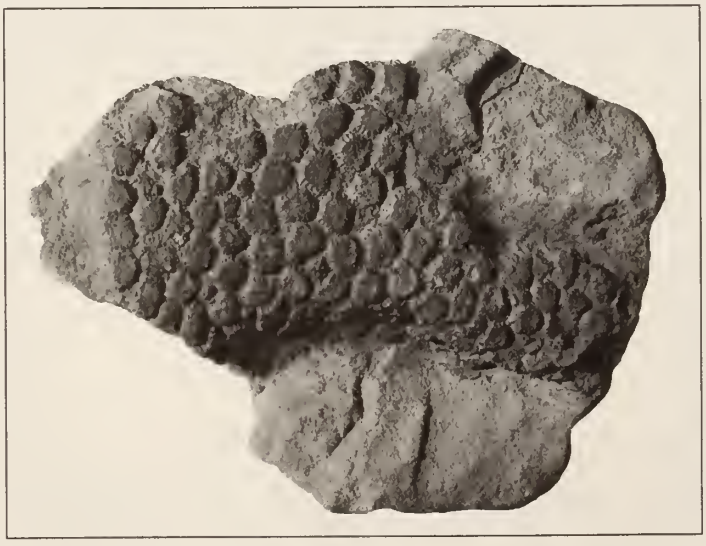
**Paleontologist** Barnum Brown found the **fossilized** bones of this *T. rex* near Hell Creek, Montana in 1908. Based on what he found, paleontologists drew conclusions about how *T. rex* looked, moved, and behaved. Since that time, new discoveries and new ideas about fossil evidence have changed our beliefs about dinosaurs. For a long time, *T. rex* bones were arranged so the dinosaur stood upright, propped on its tail. With more fossil evidence and more study, paleontologists now see *T. rex* differently.

**This treasure was found in Montana, United States.**

- How does the old *T. rex* stance compare with the new one? Why do you think paleontologists changed their minds about its stance?
- What evidence do you have that *T. rex* was a carnivore (meat eater)?
- Describe how *T. rex* might have hunted its prey.
- Find a plant-eating dinosaur and compare it to *T. rex*. What clues do the skeletons give you about how they moved, what they ate, and how they behaved?

You can find this exhibit on the fourth floor. Look for this symbol.
*Scheduled to open May, 1995.*

Fossilized Dinosaur Skin



# Dinosaur Mummy

Treasure 48 In 1908, Charles Sternberg and his son, George, both fossil hunters, were searching for dinosaur **fossils** in Wyoming. They found the **"mummified"** body of a duck-billed dinosaur, which roamed the Earth about 65 million years ago. Finding fossilized dinosaur bones is rare. This dinosaur left impressions of skin, flesh, and tendons. It gave **paleontologists** their most complete picture of dinosaur body structure.

**This treasure was found in Wyoming, United States.**

Can you see the area that looks like goose bumps? That's the skin pattern. This dinosaur didn't have scales like a snake or lizard. The skin was more like an alligator's or like the skin on a bird's foot (see inset). The little bumps are called *tubercles*. If you look closely, you can see that they're smaller around the joints and larger along the back and sides.

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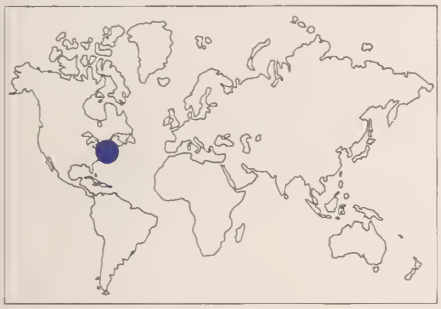
- Why do you think most dinosaur fossils are only bones? What do you think happened to the flesh and skin of dinosaurs whose bones became fossilized?
- What tools do you think a paleontologist might use today to find dinosaurs?
- What does the skin tell you about the dinosaur's environment?
- How do you think artists decide what a dinosaur's coloring was like? What color(s) do you think the duck-billed dinosaur might have been?

You can find this exhibit on the fourth floor. Look for this symbol.
*Scheduled to open May, 1995.*

Mammoth

# Warren Mastodon

Treasure 46 You are looking at a mastodon, a member of the elephant family that lived 11,000 years ago. This skeleton was found in a bog in Orange County, New York, in 1845. Most likely the mastodon fell into the bog and sank quickly. When it was found, it was still in the position it had died in–standing upright. This mastodon was acquired by the American Museum of Natural History in 1925.



**This treasure was found in New York, United States.**

The elephant family has been around for over ten million years. Look at the two family members on either side of the mastodon. The smaller one is *Gomphotherium* (gum-foh-THEE-ree-um). It lived about ten million years ago during the last Ice Age. Its **skeleton** was found in South Dakota. The larger elephant family member is a mammoth, a **species** that died out about 11 thousand years ago. Its skeleton was found in Indiana.

- Compare *Gomphotherium*, the mastodon, and the mammoth. How are they similar to elephants today? How are they different?
- What do you think helped mastodons live in very cold climates?
- Elephants are not found in the United States. How do you think these elephant fossils came to be here? Look at the shape of the continents for clues.
- Where do the living relatives of the mastodon, mammoth and *Gomphotherium* live today? What are some of the problems facing their survival?

You can find this exhibit on the fourth floor. Look for this symbol.

# Glossary

**adapt** to change over time to fit different conditions.

**algae** simple marine and freshwater plants including most seaweeds.

***Allosaurus*** a meat-eating dinosaur of the Late Jurassic period. Its name means *other lizard*.

**anatomy** the structure of a plant or animal.

**asteroid** any of about 1600 very small planets that revolve about the sun.

***Barosaurus*** a plant-eating dinosaur of the Late Jurassic period. Its name means *heavy lizard*.

**carat** unit of weight for precious stones, equal to 1/5 gram.

**carnivore** an animal that feeds primarily on animal flesh.

**decompose** decay or rot.

**embryo** an animal or plant in the early stages of its development from an egg.

**endangered** liable to become extinct.

**entomologist** a scientist who studies insects.

**extinction** world-wide dying out of a species.

**fossil** any evidence of prehistoric life that is at least ten thousand years old.

**forage** hunt or search for food.

**habitat** type of area, such as a desert, swamp, or woodland where plants or animals live naturally.

**herbivore** an animal that feeds primarily on vegetation.

**hologram** three-dimensional image made on holographic film without the use of a camera. For viewing, the image is lighted from behind.

**hypothesis** an idea or guess that can be tested and that temporarily explains an event or observation.

**geologist** a scientist who studies the Earth's crust, the layers of which it is composed, and their history.

**larva** in most insects, the immature, flightless stage that transforms into a resting stage called a *pupa* or another stage before becoming an adult.

**mammal** a backboned animal that feeds milk to its young, has hair, and a constant blood temperature.

**meteor** mass of stone or metal that comes toward Earth from outer space with enormous speed; shooting star.

**meteorite** mass of stone or metal that has reached Earth from outer space.

**mummified** preserved from decay.

**naturalist** a scientist who studies plants and animals and their environments.

***Oviraptor*** a plant-eating and meat-eating dinosaur that lived during the Late Cretaceous period. Its name means *egg thief*.

**paleontology** the branch of science that deals with past geological periods as known from fossil remains.

**paleontologist** a scientist who studies fossil remains.

**predator** an animal that hunts other animals for food.

**prey** an animal that is hunted by another animal.

**rainforest** a tropical woodland with an annual rainfall of at least 100 inches and marked by tall broad-leaved trees that form a continuous canopy.

**savannah** a grassland with trees.

**skeleton** bones of a body fitted together in their natural places.

**species** like organisms that are able to reproduce their own kind.

**specimen** one of a group or a class taken to show what the others are like; sample.

***Tyrannosaurus rex*** a meat-eating dinosaur of the Late Cretaceous period. Its name means *tyrant lizard king*.

***Velociraptor*** a meat-eating dinosaur of the Cretaceous period. Its name means *swift plunderer*.

**vertebrae** the bones of the backbone.

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Allison, Lind, and Martha Weston. *Pint-Size Science.* New York: Little, Brown, 1994. (elementary)

Avi-Yonah, Michael. *Dig This! How Archaeologists Uncover Our Past.* Minneapolis, Minn.: Runestone Press, 1993. (elementary)

Avi-Yonah, Mike. *Piece by Piece! Mosaics of the Ancient World.* Minneapolis, Minn.: Runestone Press, 1993. (elementary)

Bramwell, Martyn. *Book of Planet Earth.* New York: Simon & Schuster, 1991. (intermediate)

Burnie, David. *Tree.* New York: Alfred A. Knopf, 1988. (elementary and intermediate)

Connor, Judith. *Seashore Life on Rocky Coasts.* Monterey, Calif.: Monterey Bay Aquarium Foundation, 1993. (intermediate)

Cornell, Joseph. *Journey to the Heart of Nature.* Nevada City, Calif.: DAWN Publications, 1994. (elementary)

*Dingus, Lowell. *What Color Is That Dinosaur?* Brookfield, Conn.: The Millbrook Press, 1994. (elementary)

Dingus, Lowell, et al. *Mammals and Their Extinct Relatives: A Guide to the Lila Acheson Wallace Wing.* New York: American Museum of Natural History, 1994.

Dixon, Ann. *How Raven Brought Light to People.* New York: Margaret McElderry Books, 1992. (elementary)

Doris, Ellen. *Doing What Scientists Do.* Portsmouth, New Hampshire: Heineman, 1991. (elementary and intermediate)

*Gaffney, Eugene. *Dinosaurs: A Golden Guide.* New York: Golden Books, 1990. (elementary and intermediate)

*Gaffney, Michael. *Secret Forests.* New York: Golden Books Western Publishing, 1994. (elementary)

Gallimard, Jeunesse, Claude Delafosse, Ute Fuhr, And Raoul Sautai. *Whales.* New York: Scholastic, 1991. (elementary)

Ganeri, Anita. *Ocean Facts and Lists.* London: Usbourne Publishing, 1990. (intermediate)

Gonen, Rivka. *Charge! Weapons and Warfare in Ancient Times.* Minneapolis, Runestone Press, 1993. (elementary)

Gordon, David G., and Alan Baldridge. *Gray Whales.* Monterey, Calif.: Monterey Bay Aquarium Foundation, 1991. (intermediate)

Grifalconi, Ann. *The Village of Round and Square Houses.* Boston: Little, Brown, 1986. (elementary)

Hooper Trout, Lawana. *Indians of North America: The Maya.* New York: Chelsea House Publishers, 1991. (intermediate)

*Horner, John R. and Don Lessem. *Digging Up Tyrannosaurus Rex.* New York: Crown Publishers, 1992. (elementary)

Hoyt-Goldsmith, Diane. *Totem Pole.* New York: Holiday House, 1990. (intermediate)

Hunken, Jorie. *Ecology for All Ages.* Saybrook, Conn.: The Globe Pequot Press, 1994. (intermediate)

Kimmel, Eric A. *Anansi Goes Fishing.* New York: Holiday House, 1992. (elementary)

Kitchen, Bert. *When Hunger Calls.* Cambridge, Mass.: Candlewick Press, 1994. (elementary)

*Lindsay, William. *Triceratops.* New York: Dorling Kindersley, 1993. (elementary)

Milord, Susan. *The Kid's Nature Book.* Charlotte, Vermont: Williamson Publishing, 1989. (elementary and intermediate)

Mound, Laurence. *Insect.* New York: Alfred A. Knopf, 1990. (elementary and intermediate)

Murray, Jocelyn. *Cultural Atlas for Young People: Africa.* New York: Facts on File, 1990. (intermediate)

Owen, Jennifer. *Mysteries & Marvels of Insect Life.* London: Usborne Publishing, 1984. (intermediate)

Parker, Steve. *Fish.* New York: Alfred A. Knopf, 1990. (elementary and intermediate)

Parker, Steve. *Pond & River.* New York: Alfred A. Knopf, 1988. (elementary and intermediate)

Parker, Steve. *Skeleton.* New York: Alfred A. Knopf, 1988. (elementary and intermediate)

Preston, Douglas J. *Dinosaurs in the Attic: An Excursion Into the American Museum of Natural History.* New York: St. Martin's Press, 1986. (intermediate)

Schimid, Eleonore. *The Living Earth.* New York: North South Books, 1994. (intermediate)

*The Origins of Money and Trade.* Minneapolis: Runestone Press, 1994. (elementary)

*Spizzirri, Linda. *An Educational Coloring Book of Endangered Mammals of Africa.* Rapid City, S.D.: Spizzirri Publishing, 1993. (elementary)

*Staple, Michele and Linda Gamlin. *The Random House Book of 1001 Questions and Answers About Animals.* New York: Random House, 1990. (elementary)

Stockley, Corinne. *Dictionary of Biology.* London: Usborne Publishing, 1986. (elementary and intermediate)

Symes, R.F. *Rocks & Minerals.* New York: Alfred A. Knopf, 1988. (intermediate)

Taylor, Paul D. *Fossil.* New York: Alfred A. Knopf, 1990. (intermediate)

Vancleave, Janice. *Biology for Every Kid.* New York: John Wiley and Sons, 1990. (elementary and intermediate)

**The Visual Dictionary of the Earth.* New York: Dorling Kindersley, 1993. (intermediate and elementary)

Walker, Richard. *The Children's Atlas of the Human Body.* Brookfield, Conn.: The Millbrook Press, 1994. (elementary and intermediate)

*Woelfein, Luise. *The Ultimate Bug Book.* New York: Western Publishing, 1993. (elementary)

*Wood, Jenny. *The Children's Atlas of the People of the World.* Brookfield, Conn.: The Millbrook Press, 1993. (elementary and intermediate)

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